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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,669	04/09/2004	M. Zouhair Atassi	17525 (AP)	9880

51957 7590 05/17/2007

ALLERGAN, INC.
2525 DUPONT DRIVE, T2-7H
IRVINE, CA 92612-1599

EXAMINER	
PORTNER, VIRGINIA ALLEN	
ART UNIT	PAPER NUMBER
1645	
MAIL DATE	DELIVERY MODE
05/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/821,669	ATASSI, M. ZOUHAIR	
	Examiner	Art Unit	
	Ginny Portner	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,31-43,48-61,63,67-73,114-121,123-133 and 136* is/are pending in the application.

4a) Of the above claim(s) *48-53* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17,31-43,54-61,63,67-73,114-121,123-133 and 136* is/are rejected.

7)☒ Claim(s) *2-11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-11, 12-13,14-17, 31-43,48-53, 54-61,63,67-73,114-121,123-133, 136 are pending. Claims 48-53 stand withdrawn from consideration

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Objections/Rejections Withdrawn

2. Objections and Rejections over canceled claims are withdrawn.

1. Claims 1-17 and 33-35, 124, 127131, 134-135 objected to because of the following informalities have been obviated by claim amendment or cancellation of claims.

2. Claim Rejections - 35 USC § 101. Claims 134 and 135 have been canceled.

3. Claims 31-43, 54-61,63,67-73,114-121, 123-133 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention have been obviated by claim amendment or necessitated new grounds of rejection set forth below.

4. Claims 1-11, 14, and 16-17 rejected under 35 U.S.C. 102(b) as being anticipated by Oshima et al (1997) is herein withdrawn in light of applicant's traversal on the record.

5. Claims 1-13 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanna et al (1998) in light of evidence provided by Dolimbek et al(2007) is herein withdrawn in light of the claim amendment to recite detecting

6. Claims 1-13 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Jankovic et al (1995) in light of evidence provided by Dolimbek et al(2007), is herein withdrawn in light of the claim amendment to recite detecting.

Objections/Rejections Maintained/Response to Arguments

7. ***Claim Rejections - 35 USC § 112 Maintained:*** The rejection of claims 1-11, 14-17 (dependent upon claim 1) under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is traversed on the grounds that the amended claims are definite and the rejection should be withdrawn.

8. It is the position of the examiner while this rejection has been partially obviated, the methods step of detecting must detect antibodies immunoreactive with two peptides "*first*

BoNT/A peptide and a second BoNT/A peptide" but in paragraph 5, the invention is redefined once again by a wherein phrase that is contradictory to the prior defined compositions of paragraphs 1 and 2 by the phrase "wherein the presence of antibodies immunoreactive with **at least one** of said BoNT/A peptides indicates immunoresistence to a botulinum toxin therapy. The claim limitations are still internally inconsistent and unclear. The rejection is maintained.

9. ***Claim Rejections - 35 USC § 102 Maintained*** The rejection of claims 1-14,17, 136 are rejected under 35 U.S.C. 102(b) as being anticipated by Tugnoli et al (1997) in light of evidence provided by Dolimbek et al(2007) is traversed on the grounds that Tugnoli et al does not disclose the recited peptides of the claims and therefore does not anticipate the claimed invention.

10. It is the position of the examiner that the claimed method does not contact a biological sample with a peptide, but merely states that the methods detects antibodies that would be immunoreactive with the peptide.

11. No specific methods steps are claimed for detecting the antibodies, thus permitting detection of the antibodies by any method that identifies neutralizing antibodies that would be immunoreactive with the claimed peptides and therefore meet the detecting limitations of the claims. The antibodies of Tugnoli et al are polyclonal antisera from patients that are immunoresistent to botulinum toxin treatment (see page 1389, col. 1-2). Tugnoli et al disclose the instantly claimed method, the method comprising the step of:

detecting the presence or absence of antibodies in an individual (see page Tugnoli et al, section 5.5) that neutralize botulinum toxin, wherein the antibodies in the individual were detected effectively by mouse bioassay or ELISA. Tugnoli et al obtained an antibody containing

sample from the patient and detected the presence of neutralizing antibodies in the sample that are in the individual by mouse bioassay. The antibodies that neutralized BoNT/A would bind to the whole neurotoxin as well as bind to the liner epitope containing peptides recited in the claims because the neurotoxin administered to the patient comprised all of the neurotoxin domains, to include the Hn domain, as well as the Hc domain from which the range of amino acids recited in the claims originate. Dolimbek et al(2007) is not a second reference used in a 35 USC 102 rejection, but provides *evidence* of neutralizing antibodies in human individuals to immunoreact with the recited peptides of the claims. Tugnoli et al detected neutralizing antibodies in individual patient biological samples. Additionally Tugnoli et al found that the neutralizing antibodies maintained persistent immunoresistence over time (see page 1389, col. 1, p. 1). Tugnoli et al anticipates the instantly claimed invention as now claimed in light of the evidence provided by Dolimbek et al because the antibodies of Tugnoli et al were neutralizing antibodies for botulinum toxin A (see page 1389, col. 1, p. 2 "BoNT/A") and all individual human patients and experimental samples evaluated by Domlimbek et al produced antibodies to amino acids 785-803 of SEQ ID NO 1. Tugnoli et al inherently anticipates the instantly claimed invention as now claimed.

Atlas Powder Co. V IRECA, 51 USPQ2d 1943, (FED Cir. 1999) states AArtisans of ordinary skill may not recognize the inherent characteristics or functioning of the prior art...However, the discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior arts functioning, does not render the old composition patentably new to the discoverer. AThe Court further held that Athis same reasoning holds true when it is not a property but an ingredient which is inherently contained in the prior art.

New Combination of Claim Limitations/New Grounds of Rejection

Claim Objections

12. Claims 2-11 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 2-11 have been amended to recite the phrase "an amino acid sequence selected from the group consisting of"; the sequence may be any size, and is not required to be the minimum size of 6 amino acids as defined by independent claim 1 from which claim 2 depends, but may be an amino acid sequence of any size selected from the recited ranges of amino acids that defines an immunoreactive epitope (epitopes known to be from 1 to about 10 amino acids in length) ; therefore, claim 2 is broader in scope than claim 1 and is not further limiting of claim 1.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

13. Claims 31-43 (amended species of 6 amino acids), 114-121(amended species of 6 amino acids) are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Amended Claims 31-43 and 114-121, 123-133 (species directed to a peptide of 6 amino acids in length, forth paragraph of subparagraph (b)) recite a BoNT/A peptide of 6 amino acid in length for stimulating an immune response in an individual, but a peptide of 6 amino acids would evidence a relative molecular weight of less than 1000 daltons, and is considered to be a hapten, thus it would not be recognized as an immunogen and would not stimulate an immune response. While haptens when conjugated to a carrier protein are able to stimulate an immune response, the peptide(s) of claims 31-43 and 114-121 is/are not conjugated to a carrier, and therefore would be too small to induce or elicit an immune response due to its' size. This newly amended peptide composition set forth in paragraph b) of 6 amino acids in size is not enabled for stimulating an immune response.

2. Amended and new claims 1-11, 12-13,14-17, 31-43, 54-61,63,67-73,114-121,123-133, 136 are rejected under 35 U.S.C. 112, first paragraph (Scope), because the specification, while being enabling for methods and compositions for the induction of an immune response and detection of antibodies to botulinum toxin serotype A peptides, does not reasonably provide enablement for detection of or induction of an immune response through using a peptide that is an immunoreactive fragment or conservative variant, or a peptide that is not large enough to stimulate an immune response thereto to the recited peptides. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

3. The instant Specification describes numerous peptide epitopes contained in botulinum toxin heavy chain, both the N-terminal and C-terminal domains. The Specification also teaches

the production of monoclonal and polyclonal antibodies to specific peptides, and detection of antibodies to specific peptides but does not show the induction of an immune response to peptides that are not sufficiently large to be recognized as foreign in an immunocompetant host animal nor immunoreactive fragments of a peptide could be as small as 1-3 amino acids, or peptides of 6 amino acids that are too small to induce an immune response by itself, nor does it describe peptides that comprise conservative substitutions in the peptides so to be able to induce and detect immune responses that are botulinum toxin specific based only upon a functional characteristic that the peptide should have.

4. Oshima et al (1997) administered peptides from the heavy chain of botulinum toxin and extensive variance in immune response based upon the differing mouse animal models to which the peptides were administered . Balb-C mice were found not to recognize several of the peptides that were found to be immunogenic in SJL mice; variability in immune response introduces an element of unpredictability for a peptide compositions(see Oshima et al, Tables 2 and 3, pages 10-11).

The specification fails to teach the identity of conservative variants, and what immunoreactive fragments of the peptides and conservative variants would serve to function as immunogen to induce a specific immune response to botulinum toxin. The instant fact pattern closely resembles that in *Ex parte Maizel*, 27 USPQ2d 1662 (BPAI 1992). In *Ex parte Maizel*, the claimed invention was directed to compounds which were defined in terms of function rather than sequence. The only disclosed compound in *Ex parte Maizel* was the full length, naturally occurring protein. The Board found that there was no reasonable correlation between the scope of exclusive right desired by Appellant and the scope of enablement set forth in the patent

application. Even though Appellant in *Ex parte Maizel* urged that the biologically functional equivalents would consist of proteins having amino acid substitutions wherein the substituted amino acids have similar hydrophobicity and charge characteristics such that the substitutions are "conservative" and do not modify the basic functional equivalents of the protein, the Board found that the claims encompassed an unduly broad number of compounds. Such is the instant situation because the claims simply recite botulinum toxin antigens capable of stimulating an immune response.

Further, the specification fails to provide an adequate written description of other amino acids sequences that would induce/stimulate an immune response specific to botulinum toxin, especially when the peptide is 6 consecutive amino acids in length which may comprise conservative substitutions in the sequence in light of sequence alignments provided herewith that show viral and bacterial peptide sequences that are not from botulinum toxin share the claimed range of amino acids (see attached sequence alignments: Alkaliphilus (member of Clostridiales), E. coli, Rhodobacter, Hepatitus C virus peptide, Seneca Valley virus, a human virus which causes respiratory tract infection, Picornavirus peptide). Therefore, the skilled artisan would be required to de novo locate, identify and characterize the claimed other peptides. This would require undue experimentation given the fact that the specification is completely lacking in teachings as where or how the substitutions must be made to preserve the claimed functional characteristics that must be botulinum toxin specific.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 10 and 11 recites the limitation "wherein two of said additional BoNT/A peptides" in dependence upon claim 1 which no longer recites the term: additional BoNT/A peptides; claim 10 and 11 appear to define the 785-803 peptide of SEQ ID No 1 to be option in claim 1 and to be positively recited in claims 10 and 11. There is insufficient antecedent basis for this limitation in the claim. The combination of claim limitations now recited are unclear.

15. Claim 14 recites the limitation "determining" in dependence upon claim 1 which no longer recites the methods step of determining but recites the method's step of "detecting". There is insufficient antecedent basis in the methods step for this limitation in claim 1. Claim 14 in light of the amendment of claim 1 appears to modify the preamble of the claim 1, and therefore is not further limiting of claim 1, as the methods step of claim 1 has not been modified. Clarification is requested

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US006136551A 5731161 US006287566B1 are cited to show methods of detecting immunoresistence and protective neurotoxin peptides.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ginny Portner whose telephone number is (571) 272-0862. The examiner can normally be reached on flextime, but usually M-F, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on (571) 272-0787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Vgp May 9, 2007

MARK NAVARRO
PRIMARY EXAMINER

Scope of Enablement documents
Attachment to Office Action

ESULT 7
Q3C8X4_9CLOT
ID Q3C8X4_9CLOT PRELIMINARY; PRT; 27 AA.
AC Q3C8X4;
DT 22-NOV-2005, integrated into UniProtKB/TrEMBL.
DT 22-NOV-2005, sequence version 1.
DT 07-FEB-2006, entry version 3.
DE Hypothetical protein.
GN ORFNames=AmetDRAFT_2083;
OS Alkaliphilus metalliredigenes QYMF.
OC Bacteria; Firmicutes; Clostridia; Clostridiales; Clostridiaceae;
OC Alkaliphilus.
OX NCBI_TaxID=293826;
RN [1]
RP NUCLEOTIDE SEQUENCE.
RC STRAIN=QYMF;
RG US DOE Joint Genome Institute (JGI-PGF);
RA Copeland A., Lucas S., Lapidus A., Barry K., Detter J.C., Glavina T.,
RA Hammon N., Israni S., Pitluck S., Richardson P.;
RT "Sequencing of the draft genome and assembly of Alkaliphilus
RT metalliredigenes QYMF.";
RL Submitted (OCT-2005) to the EMBL/GenBank/DDBJ databases.
RN [2]
RP NUCLEOTIDE SEQUENCE.
RC STRAIN=QYMF;
RG US DOE Joint Genome Institute (JGI-ORNL);
RA Larimer F., Land M.;
RT "Annotation of the draft genome of Alkaliphilus metalliredigenes
RT QYMF.";
RL Submitted (OCT-2005) to the EMBL/GenBank/DDBJ databases.
CC -!- CAUTION: The sequence shown here is derived from an
CC   EMBL/GenBank/DDBJ whole genome shotgun (WGS) entry which is
CC   preliminary data.
CC ---

CC ---
DR EMBL; AAKU01000044; EAO81360.1; -; Genomic_DNA.
KW Hypothetical protein.
SQ SEQUENCE 27 AA; 2846 MW; 2DDBA21A596A7492 CRC64;

 Query Match   29.4%; Score 30; DB 2; Length 27;
 Best Local Similarity 50.0%; Pred. No. 3e+03;
 Matches 4; Conservative 4; Mismatches 0; Indels 0; Gaps 0;

```
Qy      11 YLMNSMIP 18
        ::|||::|
Db       7 WVMNSLVP 14
```

ESULT 7
Q3C8X4_9CLOT
ID Q3C8X4_9CLOT PRELIMINARY; PRT; 27 AA.
AC Q3C8X4;
DT 22-NOV-2005, integrated into UniProtKB/TrEMBL.
DT 22-NOV-2005, sequence version 1.
DT 07-FEB-2006, entry version 3.
DE Hypothetical protein.
GN ORFNames=AmetDRAFT_2083;
OS Alkaliphilus metalliredigenes QYMF.
OC Bacteria; Firmicutes; Clostridia; Clostridiales; Clostridiaceae;
OC Alkaliphilus.
OX NCBI_TaxID=293826;
RN [1]
RP NUCLEOTIDE SEQUENCE.
RC STRAIN=QYMF;
RG US DOE Joint Genome Institute (JGI-PGF);
RA Copeland A., Lucas S., Lapidus A., Barry K., Detter J.C., Glavina T.,
RA Hammon N., Israni S., Pitluck S., Richardson P.;
RT "Sequencing of the draft genome and assembly of Alkaliphilus
RT metalliredigenes QYMF.";
RL Submitted (OCT-2005) to the EMBL/GenBank/DDBJ databases.
RN [2]
RP NUCLEOTIDE SEQUENCE.
RC STRAIN=QYMF;
RG US DOE Joint Genome Institute (JGI-ORNL);
RA Larimer F., Land M.;
RT "Annotation of the draft genome of Alkaliphilus metalliredigenes
RT QYMF.";
RL Submitted (OCT-2005) to the EMBL/GenBank/DDBJ databases.
CC -!- CAUTION: The sequence shown here is derived from an
CC   EMBL/GenBank/DDBJ whole genome shotgun (WGS) entry which is
CC   preliminary data.
CC ---

CC ---
DR EMBL; AAKU01000044; EAO81360.1; -; Genomic_DNA.
KW Hypothetical protein.
SQ SEQUENCE 27 AA; 2846 MW; 2DDBA21A596A7492 CRC64;

 Query Match   29.4%; Score 30; DB 2; Length 27;
 Best Local Similarity 50.0%; Pred. No. 3e+03;
 Matches 4; Conservative 4; Mismatches 0; Indels 0; Gaps 0;

Qy 11 YLMNSMIP 18
::|||::|
Db 7 WVMNSLVP 14

RESULT 47
C85939
hypothetical protein Z4183 [imported] - Escherichia coli (strain O157:H7, substrain EDL933)
C;Species: Escherichia coli
C;Date: 16-Feb-2001 #sequence_revision 16-Feb-2001 #text_change 09-Jul-2004
C;Accession: C85939
R;Perna, N.T.; Plunkett III, G.; Burland, V.; Mau, B.; Glasner, J.D.; Rose, D.J.; Mayhew, G.F.; Evans, P.S.; Gregor, J.; Kirkpatrick, H.A.; Posfai, G.; Hackett, J.; Klink, S.; Boutin, A.; Shao, Y.; Miller, L.; Grotbeck, E.J.; Davis, N.W.; Lim, A.; Dimalanta, E.; Potamousis, K.; Apodaca, J.; Anantharaman, T.S.; Lin, J.; Yen, G.; Schwartz, D.C.; Welch, R.A.; Blattner, F.R.
Nature 409, 529-533, 2001
A;Title: Genome sequence of enterohemorrhagic Escherichia coli O157:H7.
A;Reference number: A85480; MUID:21074935; PMID:11206551
A;Accession: C85939
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-27 <STO>
A;Cross-references: UNIPROT:Q8X3L8; UNIPARC:UPI00000D0EF5; GB:AE005174; NID:g12517358; PIDN:AAG57975.1; GSPDB:GN00145; UWGP:Z4183
A;Experimental source: strain O157:H7, substrain EDL933
C;Genetics:
A;Gene: Z4183

Query Match 21.6%; Score 22; DB 2; Length 27;
Best Local Similarity 66.7%; Pred. No. 5.7e+03;
Matches 4; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 NKFLNQ 6
           :|||:|
Db       8 DKFLSQ 13
```

RESULT 40
S18582
hypothetical protein K (pufQ 3' region) - Rhodobacter sphaeroides
C;Species: Rhodobacter sphaeroides
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 03-May-1994
C;Accession: S18582; S32855
R;Hunter, C.N.; McGlynn, P.; Ashby, M.K.; Burgess, J.G.; Olsen, J.D.
Mol. Microbiol. 5, 2649-2661, 1991
A;Title: DNA sequencing and complementation/deletion analysis of the bchA-puf operon region of Rhodobacter sphaeroides: in vivo mapping of the oxygen-regulated puf promoter.
A;Reference number: S18580; MUID:92140030; PMID:1779756
A;Accession: S18582
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-20 <HUN>
A;Cross-references: UNIPARC:UPI000017AB8B; EMBL:X68795

Query Match 21.6%; Score 22; DB 2; Length 20;
Best Local Similarity 75.0%; Pred. No. 4.3e+03;
Matches 3; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

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Qy      16 MIPY 19
           |:||
Db       1 MVPY 4
```

RESULT 40
S18582
hypothetical protein K (pufQ 3' region) - Rhodobacter sphaeroides
C;Species: Rhodobacter sphaeroides
C;Date: 31-Dec-1993 #sequence_revision 31-Dec-1993 #text_change 03-May-1994
C;Accession: S18582; S32855
R;Hunter, C.N.; McGlynn, P.; Ashby, M.K.; Burgess, J.G.; Olsen, J.D.
Mol. Microbiol. 5, 2649-2661, 1991
A;Title: DNA sequencing and complementation/deletion analysis of the bchA-puf operon region of Rhodobacter sphaeroides: in vivo mapping of the oxygen-regulated puf promoter.
A;Reference number: S18580; MUID:92140030; PMID:1779756
A;Accession: S18582
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-20 <HUN>
A;Cross-references: UNIPARC:UPI000017AB8B; EMBL:X68795

Query Match 21.6%; Score 22; DB 2; Length 20;
Best Local Similarity 75.0%; Pred. No. 4.3e+03;
Matches 3; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

Qy 16 MIPY 19
|:||
Db 1 MVPY 4

RESULT 36
A27375
photosystem I iron-sulfur protein - barley chloroplast (fragment)
N;Alternate names: photosystem I 9K protein
C;Species: chloroplast Hordeum vulgare (barley)
C;Date: 30-Jun-1988 #sequence_revision 30-Jun-1988 #text_change 12-Jul-2004
C;Accession: A27375
R;Hoj, P.B.; Svendsen, I.; Scheller, H.V.; Moller, B.L.
J. Biol. Chem. 262, 12676-12684, 1987
A;Title: Identification of a chloroplast-encoded 9-kDa polypeptide as a 2[4Fe-4S] protein carrying centers A and B of photosystem I.
A;Reference number: A27375; MUID:87308302; PMID:3305512
A;Accession: A27375
A;Molecule type: DNA
A;Residues: 1-30 <HOJ>
A;Cross-references: UNIPROT:P10794; UNIPARC:UPI0000174DD7
C;Genetics:
A;Genome: chloroplast
C;Keywords: 4Fe-4S; chloroplast; electron transfer; iron-sulfur protein; membrane-associated complex; photosynthesis; photosystem I; thylakoid

Query Match 22.5%; Score 23; DB 2; Length 30;
Best Local Similarity 100.0%; Pred. No. 4.3e+03;
Matches 4; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy      16 MIPY 19
           ||||
Db      27 MIPY 30
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RESULT 50
US-10-512-885A-126
; Sequence 126, Application US/10512885A
; Publication No. US20060216691A1
; GENERAL INFORMATION:
; APPLICANT: BUSCHLE, MICHAEL
; APPLICANT: HABEL, ANDRE
; APPLICANT: KLADE, CHRISTOPH
; APPLICANT: MATTNER, FRANK
; APPLICANT: OTAVA, OLEKSANDR
; APPLICANT: VYTVYTSKA, ORESTA
; APPLICANT: ZAUNER, WOLFGANG
; APPLICANT: ZINKE, SANDRA
; APPLICANT: KIRLAPPOS, HELEN
; TITLE OF INVENTION: METHOD FOR ISOLATING HEPATITIS C VIRUS PEPTIDES
; FILE REFERENCE: SONN:059US
; CURRENT APPLICATION NUMBER: US/10/512,885A
; CURRENT FILING DATE: 2004-10-28
; PRIOR APPLICATION NUMBER: PCT/EP03/09482
; PRIOR FILING DATE: 2003-08-27
; NUMBER OF SEQ ID NOS: 1172
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 126
; LENGTH: 18
; TYPE: PRT
; ORGANISM: Hepatitis C virus
US-10-512-885A-126

Query Match 24.5%; Score 25; DB 6; Length 18;
Best Local Similarity 80.0%; Pred. No. 1e+03;
Matches 4; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy       7 CSVSY 11
           ||:||
Db       4 CSMSY 8
```

ESULT 1
US-11-335-891-92
; Sequence 92, Application US/11335891
; Publication No. US20060159659A1
; GENERAL INFORMATION:
; APPLICANT: HALLENBECK, PAUL
; TITLE OF INVENTION: SENECA VALLEY VIRUS BASED COMPOSITIONS AND METHODS FOR
; TITLE OF INVENTION: TREATING DISEASE
; FILE REFERENCE: 287037.127US2
; CURRENT APPLICATION NUMBER: US/11/335,891
; CURRENT FILING DATE: 2006-01-19
; PRIOR APPLICATION NUMBER: 60/506,182
; PRIOR FILING DATE: 2003-09-26
; PRIOR APPLICATION NUMBER: PCT/US2004/031504
; PRIOR FILING DATE: 2004-09-23
; PRIOR APPLICATION NUMBER: 60/664,442
; PRIOR FILING DATE: 2005-03-23
; PRIOR APPLICATION NUMBER: 60/726,313
; PRIOR FILING DATE: 2005-10-13
; NUMBER OF SEQ ID NOS: 227
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 92
; LENGTH: 22
; TYPE: PRT
; ORGANISM: Ljungan virus
US-11-335-891-92

Query Match 34.3%; Score 35; DB 7; Length 22;
Best Local Similarity 100.0%; Pred. No. 27;
Matches 6; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 KFLNQC 7
||||||
Db 8 KFLNQC 13

RESULT 50
US-10-450-763-46962
; Sequence 46962, Application US/10450763
; Publication No. US20050196754A1
; GENERAL INFORMATION:
; APPLICANT: Hyseq, Inc
; TITLE OF INVENTION: NOVEL NUCLEIC ACIDS AND POLYPEPTIDES
; FILE REFERENCE: 790CIP3/US
; CURRENT APPLICATION NUMBER: US/10/450,763
; CURRENT FILING DATE: 2003-06-11
; PRIOR APPLICATION NUMBER: PCT/US01/08631
; PRIOR FILING DATE: 2001-03-30
; PRIOR APPLICATION NUMBER: 09/540,217
; PRIOR FILING DATE: 2000-03-31
; PRIOR APPLICATION NUMBER: 09/649,167
; PRIOR FILING DATE: 2000-08-23
; NUMBER OF SEQ ID NOS: 60736
; SOFTWARE: Custom
; SEQ ID NO 46962
; LENGTH: 24
; TYPE: PRT
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: misc_feature
; LOCATION: (1)...(24)
; OTHER INFORMATION: Xaa = X or * as defined in Table 2
US-10-450-763-46962

Query Match 29.4%; Score 30; DB 5; Length 24;
Best Local Similarity 45.5%; Pred. No. 1.3e+03;
Matches 5; Conservative 4; Mismatches 2; Indels 0; Gaps 0;

Qy 3 FLNQCSVSYLM 13
||::||: |:
Db 14 FLHRCSLGILV 24

ESULT 1
US-11-335-891-92
; Sequence 92, Application US/11335891
; Publication No. US20060159659A1
; GENERAL INFORMATION:
; APPLICANT: HALLENBECK, PAUL
; TITLE OF INVENTION: SENECA VALLEY VIRUS BASED COMPOSITIONS AND METHODS FOR
; TITLE OF INVENTION: TREATING DISEASE
; FILE REFERENCE: 287037.127US2
; CURRENT APPLICATION NUMBER: US/11/335,891
; CURRENT FILING DATE: 2006-01-19
; PRIOR APPLICATION NUMBER: 60/506,182
; PRIOR FILING DATE: 2003-09-26
; PRIOR APPLICATION NUMBER: PCT/US2004/031504
; PRIOR FILING DATE: 2004-09-23
; PRIOR APPLICATION NUMBER: 60/664,442
; PRIOR FILING DATE: 2005-03-23
; PRIOR APPLICATION NUMBER: 60/726,313
; PRIOR FILING DATE: 2005-10-13
; NUMBER OF SEQ ID NOS: 227
; SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 92
; LENGTH: 22
; TYPE: PRT
; ORGANISM: Ljungan virus
US-11-335-891-92

Query Match 34.3%; Score 35; DB 7; Length 22;
Best Local Similarity 100.0%; Pred. No. 27;
Matches 6; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 KFLNQC 7
||||||
Db 8 KFLNQC 13

ADW30996
ID ADW30996 standard; peptide; 9 AA.
XX
AC ADW30996;
XX
DT 10-MAR-2005 (first entry)
XX
DE HLA binding epitope #1746.
XX
KW Virucide; cytostatic; gene therapy; vaccine; epitope; cytotoxic T cell;
KW MHC class I; CTL; HTL; A2-restricted cytotoxic lymphocyte; HLA;
KW viral disease; cancer.
XX
ESULT 12
US-11-129-741-2420
; Sequence 2420, Application US/11129741
; Publication No. US20060034853A1
; GENERAL INFORMATION:
; APPLICANT: YUEN, KWOK YUNG
; APPLICANT: WOO, CHIU YAT PATRICK
; APPLICANT: LAU, KAR PUI SUSANNA
; APPLICANT: CHAN, KWOK HUNG
; APPLICANT: POON, LIT MAN
; APPLICANT: PEIRIS, JOSEPH S.M.
; APPLICANT: GUAN, YI
; TITLE OF INVENTION: A NOVEL HUMAN VIRUS CAUSING RESPIRATORY TRACT
; TITLE OF INVENTION: INFECTION AND USES THEREOF
; FILE REFERENCE: V0690.0044
; CURRENT APPLICATION NUMBER: US/11/129,741
; CURRENT FILING DATE: 2005-05-16
; PRIOR APPLICATION NUMBER: 10/895,064
; PRIOR FILING DATE: 2004-07-21
; NUMBER OF SEQ ID NOS: 4257
; SOFTWARE: PatentIn version 3.3
; SEQ ID NO 2420
; LENGTH: 16
; TYPE: PRT
; ORGANISM: Corononavirus-HKU1
US-11-129-741-2420

Query Match 32.4%; Score 33; DB 6; Length 16;
Best Local Similarity 62.5%; Pred. No. 2.7e+02;
Matches 5; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

Qy 1 NKFLNQCS 8

| |:|:||

Db 7 NHFINKCS 14

ADW30996
ID ADW30996 standard; peptide; 9 AA.
XX
AC ADW30996;
XX
DT 10-MAR-2005 (first entry)
XX
DE HLA binding epitope #1746.
XX
KW Virucide; cytostatic; gene therapy; vaccine; epitope; cytotoxic T cell;
KW MHC class I; CTL; HTL; A2-restricted cytotoxic lymphocyte; HLA;
KW viral disease; cancer.
XX
OS Unidentified.
XX
PN WO2003040165-A2.
XX
PD 15-MAY-2003.
XX
PF 18-OCT-2001; 2001WO-US051650.
XX
PR 19-OCT-2000; 2000US-0242350P.
PR 20-APR-2001; 2001US-0285624P.
XX
PA (EPIM-) EPIMMUNE INC.
XX
PI Sette A, Sidney J, Southwood S;
XX
DR WPI; 2003-441519/41.
XX
PT New composition comprising at least one peptide having allele-specific
PT binding motifs for HLA, useful for preventing, treating or diagnosing
PT viral diseases and cancer.
XX
PS Claim 1; Page 52-379; 382pp; English.
XX
CC The invention relates to a composition comprising at least one peptide
CC having an isolated, prepared epitope selected from any of the sequences
CC from 30 lists given in the specification. Also disclosed is a method for
CC inducing a cytotoxic T cell response against a pre-selected antigen in a
CC patient expressing a specific MHC class I allele by contacting cytotoxic
CC T cells from the patient with the composition cited above. The
CC composition comprises an epitope that is joined by an amino acid linker.
CC The epitope is admixed or joined to a CTL or HTL epitope. The epitope is
CC bound to an HLA molecule on the antigen-presenting cell, where when an A2
CC -restricted cytotoxic lymphocyte (CTL) is present, a receptor of the CTL

CC binds to a complex of the HLA molecule and the epitope. Specifically
CC claimed are peptides having allele-specific binding motifs for HLA. The
CC compositions and methods are useful for preventing, treating or
CC diagnosing viral diseases and cancer. The peptide epitopes are useful as
CC diagnostic agents for evaluating immune responses, for making antibodies
CC and for evaluating efficacy of a vaccine. Sequences given in ADW29251-
CC ADW37745 represent epitopes of the invention as given in Tables 2-31.
XX
SQ Sequence 9 AA;

Query Match 30.4%; Score 31; DB 7; Length 9;
Best Local Similarity 57.1%; Pred. No. 2.1e+06;
Matches 4; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

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Qy      13 MNSMIPY 19
           :||::||
Db       2 LNSLVPY 8
```

ESULT 27
ADZ15101
ID ADZ15101 standard; peptide; 22 AA.
XX
AC ADZ15101;
XX
DT 16-JUN-2005 (first entry)
XX
DE Picornavirus 2A-like NPG/P peptide #46.
XX
KW cancer; Cytostatic; neoplasm.
XX
OS Picornaviridae.
XX
PN WO2005030139-A2.
XX
PD 07-APR-2005.
XX
PF 23-SEP-2004; 2004WO-US031504.
XX
PR 26-SEP-2003; 2003US-0506182P.
XX
PA (NOVS) NOVARTIS AG.
XX
PI Hallenbeck PL, Hay CM, Ganesh S, Police SR, Xu L, Yang J;
PI Cheng C;
XX
DR WPI; 2005-262902/27.
XX
PT New Seneca Valley virus nucleic acid or polypeptide, useful in preparing
PT a composition for treating cancer or inhibiting cancer progression.
XX
PS Disclosure; Fig 70; 198pp; English.
XX
CC The invention relates to a new isolated Seneca Valley virus (SVV) nucleic
CC acid. The nucleic acid is useful in preparing a composition for treating
CC cancer or inhibiting cancer progression. The present sequence represents
CC the amino acid sequence of a picornavirus 2A-like NPG/P peptide.
XX
SQ Sequence 22 AA;

Query Match 34.3%; Score 35; DB 9; Length 22;
Best Local Similarity 100.0%; Pred. No. 1.8e+02;
Matches 6; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 KFLNQC 7

Db 8 KFLNQC 13

RESULT 25
ADZ15100
ID ADZ15100 standard; peptide; 22 AA.
XX
AC ADZ15100;
XX
DT 16-JUN-2005 (first entry)
XX
DE Picornavirus 2A-like NPG/P peptide #45.
XX
KW cancer; Cytostatic; neoplasm.
XX
OS Picornaviridae.
XX
PN WO2005030139-A2.
XX
PD 07-APR-2005.
XX
PF 23-SEP-2004; 2004WO-US031504.
XX
PR 26-SEP-2003; 2003US-0506182P.
XX
PA (NOVS) NOVARTIS AG.
XX
PI Hallenbeck PL, Hay CM, Ganesh S, Police SR, Xu L, Yang J;
PI Cheng C;
XX
DR WPI; 2005-262902/27.
XX
PT New Seneca Valley virus nucleic acid or polypeptide, useful in preparing
PT a composition for treating cancer or inhibiting cancer progression.
XX
PS Disclosure; Fig 70; 198pp; English.
XX
CC The invention relates to a new isolated Seneca Valley virus (SVV) nucleic
CC acid. The nucleic acid is useful in preparing a composition for treating
CC cancer or inhibiting cancer progression. The present sequence represents
CC the amino acid sequence of a picornavirus 2A-like NPG/P peptide.
XX
SQ Sequence 22 AA;

Query Match 34.3%; Score 35; DB 9; Length 22;
Best Local Similarity 100.0%; Pred. No. 1.8e+02;
Matches 6; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 KFLNQC 7

Db 8 KFLNQC 13

Db 8 KFLNQC 13

ESULT 26
ADZ15099
ID ADZ15099 standard; peptide; 22 AA.
XX
AC ADZ15099;
XX
DT 16-JUN-2005 (first entry)
XX
DE Picornavirus 2A-like NPG/P peptide #44.
XX
KW cancer; Cytostatic; neoplasm.
XX
OS Picornaviridae.
XX
PN WO2005030139-A2.
XX
PD 07-APR-2005.
XX
PF 23-SEP-2004; 2004WO-US031504.
XX
PR 26-SEP-2003; 2003US-0506182P.
XX
PA (NOVS) NOVARTIS AG.
XX
PI Hallenbeck PL, Hay CM, Ganesh S, Police SR, Xu L, Yang J;
PI Cheng C;
XX
DR WPI; 2005-262902/27.
XX
PT New Seneca Valley virus nucleic acid or polypeptide, useful in preparing
PT a composition for treating cancer or inhibiting cancer progression.
XX
PS Disclosure; Fig 70; 198pp; English.
XX
CC The invention relates to a new isolated Seneca Valley virus (SVV) nucleic
CC acid. The nucleic acid is useful in preparing a composition for treating
CC cancer or inhibiting cancer progression. The present sequence represents
CC the amino acid sequence of a picornavirus 2A-like NPG/P peptide.
XX
SQ Sequence 22 AA;

Query Match 34.3%; Score 35; DB 9; Length 22;
Best Local Similarity 100.0%; Pred. No. 1.8e+02;
Matches 6; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 2 KFLNQC 7